Financial Economics

A. Anastasopoulos   September 2006

Course outline

The purpose of the course is to introduce the student to finance as seen from the economist's point of view. In particular, it intends to expose in terms that are accessible to the undergraduate student the following topics:
(A) The theory of decision making under uncertainty. In particular, the Expected Utility theory and the measures of risk aversion will be presented and evaluated critically.
(B) The basic portfolio models: Portfolio Selection, The Capital Asset Pricing Model (CAPAM), and the Arbitrage Pricing Theory (APT) will be dealt with extensively.
(C) The pricing of financial assets
(C1) Equilibrium pricing. In a general equilibrium situation (a) economic agents have allocated their wealth in a manner that maximizes their preferences between present and future consumption, and (b) market prices are such that there is no excess demand or excess supply of commodities sold at present. Then, the prices of financial assets are derived from conditions that hold in such an economic equilibrium.
(C2) Arbitrage pricing. The prices of assets are determined from the absence of arbitrage. This condition requires that the price of an asset that is expected to yield a positive payoff in the future must be non-negative at the present.
It will be seen that equilibrium and arbitrage pricing of financial assets are equivalent.
(D) Pricing of derivative securities. Options will be used as an example of evaluating derivatives. The reason why options are use as an example is because it can be shown that many complicated derivatives can be reduced to equivalent options. The binomial model and the Black and Scholes model of pricing options are developed as an example of pricing of derivative financial assets.

Evaluation
There will be a mid-term exam (worth 30% of the final grade), a final exam on the material of the whole course (worth 40%), four to six problem sets (worth 15%) and a project to be delivered by the last week of the session (worth 15%).
The mid-term will take place the last Thursday of October. In doing the problem 2-3 students are allowed to cooperate in gathering the data and making calculations. But each student must write his/her own paper and explain the results in his/her own words. The names of those who cooperated must appear in the covering page of each paper.

Books

S. Benninga, Financial Modeling , 2nd edition, MIT Press, 2001.
Copeland J. and F. Weston, Financial Theory and Corporate Policy, 3rdedition, Addison-Wesley, 1992.
J-P. Danthine and J.B. Donaldson, Intermediate Financial Theory, Prentice-Hal, 2002.

(This book is more advanced and should be used by those who are very serious about this course).

A. Anastas, Personal Notes on Financial Economics.

Introduction

Probability, Random Variables, and Present Value Analysis.

Reference

Any textbook on Statistics or Probability Theory.

Investment Decisions under Certainty

Transforming Income between the Present and the Future through:

(a) Borrowing and Lending, (b) Production.

References

The notes of the instructor

Copeland and Weston, Ch.1, Ch.2.

Decision Making under Uncertainty

Chance Games and Decisions-The Expected Utility Theory – Risk Aversion - The Measure of Risk Aversion - The theory of Portfolio Selection

References

Class notes

Machina, M 1983, "The Economic Theory of Individual behaviour towards Risk", - Institute for Mathematical Studies in Social Sciences Technical Report No 433, Stanford University.

Copeland and Weston, Ch.5.

Danthine and Donaldson, Ch.2-4.

Portfolio Theory-Introduction

Mean-Variance Analysis

Risk and Return as Objects of Choice

References

Bennigna, Ch.5

Danthine and Donaldson, Ch.5

The Capital Asset Pricing Model

The Efficient Portfolio Frontier-The Market Portfolio-Derivation of "Betas"-The Securities Market Line-Empirical Testes of the CAPM

References

Bennigna, Ch.6-9

Danthine and Donaldson, Ch. 6

Copeland and Weston, Ch.6-7

The Arbitrage Pricing Theory (APT)
Pricing by Arbitrage
APT as an extension of the CAPM
<u>References</u>
Copeland and Weston, Ch.7.
Danthine and Donaldson Ch.12,
Class notes

Equilibrium vs. Arbitrage

State Preference Theory
State Variables-Description of Different Environments

The Arrow-Debreu World
Contingent Claims and Contingent Commodities
<u>References.</u>
Copeland and Weston, Ch.5, and its Appendices A, B, C.

Equilibrium and Arbitrage Pricing
<u>Reference</u>
Class notes

Introduction to the Consumption Capital Asset Pricing Model
Danthine and Donaldson, Ch.7, 9 10.
Class notes

Pricing of Derivatives

Options
Call & Put Options-European and American Options-Payoff Patterns
Binomial Option Pricing
State Prices - Binomial Trees and the Pricing of Options
The Black-Scholes Model
The Role of Arbitrage - Volatility
<u>References</u>
Bennigna, Ch.10, Ch.11, Ch.12, Ch.13.
Copelad and Weston, Ch.8.
Danthine and Donaldson Ch.7,8